



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/554,265

10/25/2005

Hiroki Ose

72035

2720

23872 7590 07/01/2008
MCGLEW & TUTTLE, PC
P.O. BOX 9227
SCARBOROUGH STATION
SCARBOROUGH, NY 10510-9227

EXAMINER

CHAUDHRY, SAEED T

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

07/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/554,265	Applicant(s) OSE ET AL.	
	Examiner Saeed T. Chaudhry	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 5/5/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 18-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restriction

Applicant's election with traverse of Group I, claims 1-17 in Paper No. May 5, 2008 is acknowledged. The traversal is on the ground(s) that claims 1-17 and 18-23 are very similar to one another and connected to one another by uniform invention idea. This is not found persuasive because apparatus as claimed can be used for removing coating or spraying mist in the environment for cooling.

The requirement is still deemed proper and is therefore made FINAL.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. § 119, which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

Claim 1-7 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase “mist-like” in claims 1, 3-5, 8 and 13, and “conveyor-type” in claim 11 renders the claim indefinite because it is not clear what is included by “like” and “type” since the scope of the claim is unascertainable. Ex parte Caldwell, 1906 CD 58, (Commr pats 1905).

Claim 10 recites the limitation "the cleaning section" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

Art Unit: 1792

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) he has abandoned the invention.

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

(f) he did not himself invent the subject matter sought to be patented.

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

Claims 1 and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Orii et al.

Orii et al (2002/007844) disclose an apparatus having nozzle for spraying jet of cleaning liquid mist on an object. The cleaning liquid is mixed with a gas. Two spurting nozzles 54 each having a large number of spurting ports 53 are mounted to the upper wall portion of the outside chamber 26, though only one spurting nozzle 54 is shown in FIGS. 3 to 5. Each of these spurting nozzles 54 is arranged to permit the spurting ports 53 to be arranged in the horizontal direction. A pure water, a volatile chemical agent such as IPA, various chemical liquid, a nitrogen gas (N.sub.2), etc., which are supplied from supply sources (not shown) can be spurted from the spurting nozzles 54. The liquid material spurted from the spurting nozzle 54 is spurted in the

Art Unit: 1792

form of, for example, a liquid film conically expanding downward from the spurting port 53 so as to permit the liquid material to strike uniformly against the wafer W.

FIGS. 7A and 7B are schematic views showing examples of a mechanism for spurting IPA of mist state from the spurting nozzle, for example, the IPA spurting nozzle 76a. In order to permit IPA of a mist state to be spurted from the IPA spurting nozzle 76a, it is possible to form a small hole or a slit in the spurting port of the IPA spurting nozzle 76a and to blow IPA against the spurting port by utilizing a gas pressure as shown in FIG. 7A, 7B. In this case, it is possible to convert IPA easily into a mist.

One end portion of an IPA supply pipe 77 is connected to the IPA spurting nozzle 76a, and a switching control valve 78a for the switching of the supply between IPA and an N.sub.2 gas and for controlling the supply and stopping of the supply is mounted to the other end portion of the IPA supply pipe 77. The switching control valve 78a communicates with an IPA supply source 79 via a pipe 81 and with an N.sub.2 control valve 78b for selectively supplying an N.sub.2 gas. An N.sub.2 gas is supplied from an N.sub.2 gas supply source 80 to the N.sub.2 control valve 78b via a pipe 82 (see [0060]). A cleaning processing apparatus for performing a cleaning processing by supplying a cleaning liquid to a substrate, comprising: a process vessel for containing the substrate; a holder for holding the substrate in said process vessel; a rotating mechanism for rotating said holder; a cleaning liquid supply mechanism for spurting the cleaning liquid toward the substrate; and a chemical agent supply mechanism for supplying a chemical agent in a mist state or a vapor state to the substrate held by said holder. Wherein said chemical agent is a volatile chemical agent. Wherein said chemical agent supply mechanism includes a spurting nozzle for spurting said chemical agent, a chemical agent supply pipe for

Art Unit: 1792

supplying the chemical agent into said spurting nozzle, and a gas supply mechanism for supplying a gas into said chemical agent supply pipe, and the gas is supplied after the chemical agent is allowed to remain in said spurting nozzle or said chemical agent supply pipe thereby to spurt the chemical agent remaining in said spurting nozzle or said chemical agent supply pipe in mist state (see claims 15-18).

Claims 1, 3, 5 and 7 are rejected under 35 U.S.C. 102(a) as being anticipated by JP-2003-017459.

JP-2003-017459 discloses an apparatus having a nozzle and a jet mechanism for jetting a mist of a cleaning liquid at a pressure of 3 to 5 MPa. Wherein particle size of the mist is in the range of 50 micrometer or less. Jet means 20 is provided with the air compressor 23 and a cleaning fluid tank 24, which is connected to a pump 22. The pump 22 is connected to the cleaning nozzle 21 (see abstract and translation). The apparatus is capable of mixing gas with liquid.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

Art Unit: 1792

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 7-11 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varpio in view of JP-2003-017459).

Varpio (2002/0020435) discloses an apparatus having transport member for transporting object, plurality of treatment sections, nozzles for spraying and a water curtain between the treatment sections. The reference fails to disclose jetting liquid mist nozzle, particle size and pressure of the jetting mist.

Varpio (2002/0020435) discloses an apparatus having transport member for transporting object, plurality of treatment sections, nozzles for spraying and a water curtain between the treatment sections. The reference fails to disclose jetting liquid mist nozzle.

FIG. 1 shows a side view of an automated washing apparatus. The washing apparatus comprises a washing conveyor 1 conveying racks 21a, 21b, or similar items to be washed, through the washing apparatus. In the embodiment shown in the Figure, there are two different rack types, i.e. first racks 21a and second racks 21b. The racks 21a, 21b are for example standard size plastic racks into which the dishes are arranged. The racks 21a, 21b are provided with a sensor code 25 which allows the rack types to be identified. Each rack 21a, 21b is filled with dishes that require a similar wash: for example, vessels used in cooking and therefore usually containing impurities that are firmly stuck are placed into the rack 21a, whereas the second rack 21b will contain dishes from which the dirt comes off with a lighter wash. The number of racks meant for different kinds of dishes may naturally be more than two. The color of the rack 21a, 21b, or on a part of it, is preferably used as the sensor code 25, because it will then be easy for the staff to identify the rack types and to place the dishes into the appropriate

Art Unit: 1792

racks. The sensor code 25 may also be for example a bar code, an electromagnetic code or any other similar ID code known per se, or a combination of a plural number of codes.

The washing apparatus may comprise a prewash zone 2, followed by a main wash zone 3 and a rinsing zone 4. The washing apparatus is preceded by a feeder conveyor 5 bringing in the racks 21a, 21b and, correspondingly, followed by a discharge conveyor 6 at the outlet end. Moreover, the washing apparatus comprises containers 7 and 8, shown schematically, for storing the washing fluid for the prewash and the main wash and from where it is cycled by means of pumps 9 and 10 to both the zones separately in order to be sprayed onto the dishes to be washed by means of nozzles 11 and 12 provided in the pumps. Furthermore, it comprises a container 13 into which the water used for rinsing is collected from the rinsing zone 4, from where the used water is conveyed further to the washing zone. The rinsing zone is provided with nozzles 14 into which clean water is supplied for the rinsing by means of pumps 15. The washing apparatus further comprises containers 16 and 17 for feeding the necessary chemicals to the washing fluids used in the prewash and main wash zones (see [0011 to 0012]).

JP-2003-017459 disclose an apparatus having a cleaning liquid nozzle for spraying a mist, which sprays cleaning liquid to a particles size of 50 micrometer or less and injection pressure of the mist liquid is in the range of 3 to 50 MPa.

It would have been obvious at the time applicant invented the claimed apparatus to include a cleaning liquid mist nozzle for providing 50 micrometer or less particle size as disclosed by JP-2003-017459 in the apparatus of Varpio for purpose of cleaning the surface of an object, since mist nozzle capable of removing very small diameter contaminants from the object.

Further, one of ordinary skill in the art would manipulate the pressure of the mist liquid for better and efficient results.

Claims 1, 2, 7-11, 13-14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varpio in view of Orii et al.

Orii et al were discussed supra. However, the reference fails to disclose plurality of sections such as pre-rinsing, chemical solution cleaning and rinsing. Wherein a conveyor member transport the object through the plurality of sections. A rinse liquid is used in the cleaning tank.

Varpio (2002/0020435) discloses an apparatus having transport member for transporting object, plurality of treatment sections, nozzles for spraying and a water curtain between the treatment sections. The reference fails to disclose jetting liquid mist nozzle.

FIG. 1 shows a side view of an automated washing apparatus. The washing apparatus comprises a washing conveyor 1 conveying racks 21a, 21b, or similar items to be washed, through the washing apparatus. In the embodiment shown in the Figure, there are two different rack types, i.e. first racks 21a and second racks 21b. The racks 21a, 21b are for example standard size plastic racks into which the dishes are arranged. The racks 21a, 21b are provided with a sensor code 25 which allows the rack types to be identified. Each rack 21a, 21b is filled with dishes that require a similar wash: for example, vessels used in cooking and therefore usually containing impurities that are firmly stuck are placed into the rack 21a, whereas the second rack 21b will contain dishes from which the dirt comes off with a lighter wash. The number of racks meant for different kinds of dishes may naturally be more than two. The color of the rack 21a, 21b, or on a part of it, is preferably used as the sensor code 25, because it will

Art Unit: 1792

then be easy for the staff to identify the rack types and to place the dishes into the appropriate racks. The sensor code 25 may also be for example a bar code, an electromagnetic code or any other similar ID code known per se, or a combination of a plural number of codes.

The washing apparatus may comprise a prewash zone 2, followed by a main wash zone 3 and a rinsing zone 4. The washing apparatus is preceded by a feeder conveyor 5 bringing in the racks 21a, 21b and, correspondingly, followed by a discharge conveyor 6 at the outlet end. Moreover, the washing apparatus comprises containers 7 and 8, shown schematically, for storing the washing fluid for the prewash and the main wash and from where it is cycled by means of pumps 9 and 10 to both the zones separately in order to be sprayed onto the dishes to be washed by means of nozzles 11 and 12 provided in the pumps. Furthermore, it comprises a container 13 into which the water used for rinsing is collected from the rinsing zone 4, from where the used water is conveyed further to the washing zone. The rinsing zone is provided with nozzles 14 into which clean water is supplied for the rinsing by means of pumps 15. The washing apparatus further comprises containers 16 and 17 for feeding the necessary chemicals to the washing fluids used in the prewash and main wash zones (see [0011 to 0012]).

It would have been obvious at the time applicant invented the claimed apparatus to include a jet mechanism for jetting mist as disclosed by Orii et al into the apparatus of Varpio for the purpose of supplying mist to the objects, since mist nozzle capable of removing very small diameter contaminants from the object.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Varpio in view of Orii et al, as applied to claim 8 above, and further in view of Kamikawa.

Kamikawa (5,214,118) discloses an apparatus for providing an air curtain (see claim 10).

It would have been obvious at the time applicant invented the claimed apparatus to include an air curtain as disclosed by Kamikawa into the apparatus of Varpio for purpose of isolating one treatment section from the other.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Varpio in view of Orii et al, as applied to claim 8 above, and further in view of Murray et al.

Varpio and Orii et al were discussed supra. However, the references fail to disclose water curtain.

Murray et al (6,016,819) disclose an apparatus having a water curtain in between the plurality of treatment sections (see abstract).

It would have been obvious at the time applicant invented the claimed apparatus to include a water curtain as disclosed by Murray et al into the apparatus of Varpio for purpose of separating the treatment section between each other to prevent the contaminants mixing between the treatment sections.

Claims 1-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2001-156034 in view of JP-2003-017459.

JP-2003-017459 was discussed supra. However, the reference fails to disclose plurality of sections such as pre-rinsing, chemical solution cleaning and rinsing. Wherein a conveyor member transport the object through the plurality of sections.

JP-2001-156034 discloses an apparatus having a transport member passing through plurality of sections such as pre-rinse with pure water; a cleaning solution section and a rinsing section. The water is mixed with surfactant (see fig. 15 and translation).

It would have been obvious at the time applicant invented the claimed apparatus to include a jet mechanism for jetting mist as disclosed by JP459' into the apparatus of JP034' for purpose of removing small particles from the surface of an object. One of ordinary skill in the art would have manipulate the pressure of the pump to produce liquid pressure in the range of 0.2 to 0.4 MPa.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2001-156034 in view of JP-2003-017459, as applied to claim 8 above, and further in view of Kamikawa.

Kamikawa (5,214,118) discloses an apparatus for providing an air curtain (see claim 10).

It would have been obvious at the time applicant invented the claimed apparatus to include an air curtain as disclosed by Kamikawa into the apparatus of JP-2001-156034 for purpose of isolating one treatment section from the other.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2001-156034 in view of JP-2003-017459, as applied to claim 14 above, and further in view of Varpio.

JP-2001-156034 and JP-2003-017459 was discussed supra. However, the reference fails to use rinse liquid in the cleaning tank.

Varpio (6,530,996) discloses an apparatus, wherein a rinse liquid is used in the cleaning tank.

It would have been obvious at the time applicant invented the claimed apparatus to introduce rinse liquid in the cleaning tank as disclosed by Varpio into the apparatus of JP-2003-156034 for purpose of reducing the water consumption.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2001-156034 in view of JP-2003-017459, as applied to claim 8 above, and further in view of Murray et al.

JP-2001-156034 and JP-2003-017459 was discussed supra. However, the reference fails to use water curtain between the section.

Murray et al (6,016,819) disclose and apparatus having a water curtain in between the plurality of treatment sections (see abstract).

It would have been obvious at the time applicant invented the claimed apparatus to include a water curtain as disclosed by Murray et al into the apparatus of JP-2001-156034 for purpose of separating the treatment section between each other to prevent the contaminants mixing between the treatment sections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saeed T. Chaudhry whose telephone number is (571) 272-1298. The examiner can normally be reached on Monday-Friday from 9:30 A.M. to 4:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Barr, can be reached on (571)-272-1414. The fax phone number for non-final is (703)-872-9306.

When filing a FAX in Gp 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information

Art Unit: 1792

about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Saeed T. Chaudhry

Patent Examiner

/Michael Barr/

Supervisory Patent Examiner, Art Unit 1792